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Lisbon Strategy and Policies for the Information Society
Lisbon Strategy and i2010

Use of Computers and the Internet in Schools in Europe 2006

Country Brief: Austria

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Key findings

Almost all Austrian schools now use computers for teaching and have internet access. 68% use the internet via a broadband connection. With this figure Austria ranks at number 18 of the 27 countries participating in the survey. There is a large variation between school types: while only 59% of primary schools have a broadband internet connection, the penetration is highest among upper secondary schools, with 83% and vocational schools reaching 86%. There is hardly any variation with regard to broadband access between urban and rural areas.

A very high 88% of Austrian classroom teachers have used computers in class in the 12 months prior to the survey, with little variation across school types and between urban and rural areas, placing Austria at a good 6th place in Europe.

The learning material that is used most by Austrian teachers includes offline learning materials such as CD-ROMs. This applies to almost 90% of teachers.

Very surprisingly, the older the teachers (indicator used here: years of teaching experience), the more they make use of computers and the internet in schools in Austria. While only 14% of the younger teachers with less than 10 years of teaching experience use ICT in class in more than a quarter of their lessons, the corresponding figure reaches 34% among those with more than 20 years of teaching experience.

Only 12% of teachers do not use computers in class in Austria. Asked for the most important barrier, a rather high 55% state a lack of computers in their schools as an important barrier.

Only 14% are not convinced of any benefits of using computers in class and a very low 8% express the opinion that teachers lack the necessary skills to utilize computers in their teaching. With these figures, Austria ranks among the best performers on perceived ICT competence in Europe.

While in 2001 one hundred pupils had to share 11 computers the figure rose to 16 by 2006, a substantial improvement bringing Austria beyond the European average of 12 and ranking it in a very good 8th place. Vocational schools in Austria are best equipped with computers with 100 pupils sharing 24 computers, putting Austria at rank 6 in Europe.

The situation in Austria is very similar to the overall situation in the EU25 with respect to the results on insufficient ICT equipment in schools with figures very close to the European ones.

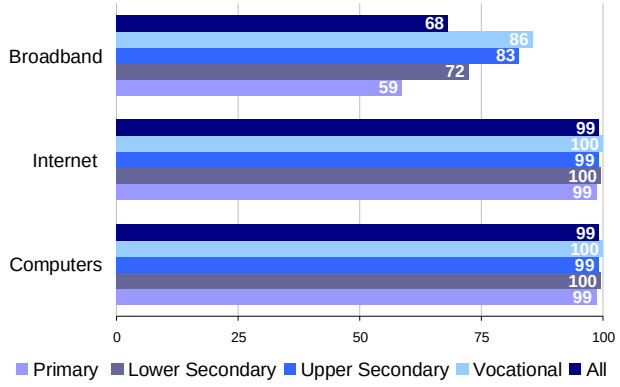
However, the problem in Austria seems to be the lower levels of motivation for ICT use in class by teachers, since a high 21% (compared to an EU25 average of 14%) of teachers with the necessary access and competence are not motivated to use ICT in class. Another 15% (compared to 10% at EU25 level) with the necessary ICT skills lack motivation and access to ICT.

ICT Equipment and Internet in Schools

Almost all Austrian schools now use computers for teaching and have internet access. 68% use the internet via a broadband connection. With this figure Austria ranks at number 18 of the 27 countries participating in the survey. There is a large variation between school types: while only 59% of primary schools have broadband internet connection, the penetration is highest among upper secondary schools, with 83% and vocational schools reaching 86%. There is hardly any variation with regard to broadband access between urban and rural areas.

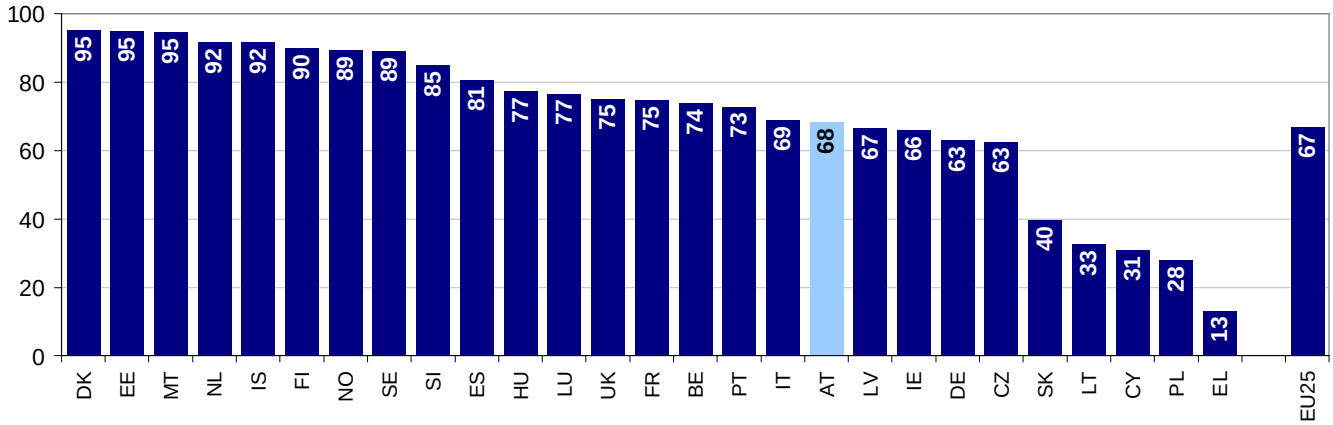
64% of schools have a website, 76% offer teachers e-mail and 21% do so to pupils. 65% of the Austrian schools using computers for teaching use them in classrooms, with by far the highest percentage being achieved in primary schools (87%), compared to figures below 40% in all other types of schools.

Percentage of Schools Using Computers, Internet Connection, and Broadband Internet Access According to School Type in Austria 2006



Source: *LearnInd HTS 2006;* ***Base:*** *All schools;* ***Question:*** *Computers: Q6; Internet, Broadband: Q9. See questionnaire for exact wording.*

Percentage of Schools with Broadband Internet Access in Europe 2006



Source: *LearnInd HTS 2006;* ***Base:*** *All schools;* ***Question:*** *Q9. See questionnaire for exact wording.*

ICT equipment in Austrian schools 2006

			Educational Level (AT)				Type of locality (AT)			Internet Access (AT)	
	Total AT	Total EU25	Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated	Narrow-band	Broadband
Computers per 100 pupils [a]	16.2	11.3	11.4	13.8	20.6	24.3	13.9	16.2	17.6	14.4	16.9
... of which internet connected	14.2	9.9	7.0	12.8	19.8	23.1	13.2	13.8	15.2	11.9	14.9
Percentage of schools having...											
Computers for teaching [b]	99.2	98.7	98.6	99.6	99.0	100.0	98.9	100.0	98.7	100.0	100.0
Internet access [c]	99.2	96.2	98.6	99.6	99.0	100.0	98.9	100.0	98.7	100.0	100.0
Broadband internet access [d]	68.1	66.9	58.6	72.3	82.7	85.5	66.9	72.8	65.1	0.0	100.0
A website [e]	64.2	63.0	45.2	80.7	99.0	95.9	92.0	60.0	60.7	52.3	70.4
An e-mail address for the majority of teachers [f]	76.0	65.2	74.3	76.8	72.7	82.0	80.4	74.2	76.2	78.8	75.6
An e-mail address for the majority of pupils [g]	21.4	23.5	9.9	29.0	26.0	39.7	27.5	14.0	25.0	13.7	25.1
A LAN [h]	68.2	55.2	51.8	82.7	87.7	89.3	75.7	67.6	66.9	53.1	75.9
An intranet [i]	38.6	40.8	23.5	48.9	68.6	65.9	61.5	30.0	39.3	26.4	44.6
An external support or maintenance contract [j]	32.3	47.1	28.2	45.6	37.4	27.8	40.0	31.5	31.2	32.3	32.8
Percentage of schools using computers for education in…											
Computer labs [k]	50.7	80.5	21.1	87.6	98.3	84.4	64.7	53.3	45.7	34.3	58.2
Classrooms [l]	64.8	61.4	87.4	37.3	39.8	36.7	53.7	64.4	67.7	77.5	59.1
School library [m]	16.9	33.4	3.8	39.5	63.4	21.5	25.1	14.0	17.0	8.4	20.7
Other locations accessible for pupils [n]	25.9	27.0	14.5	31.0	74.2	54.8	33.9	24.9	24.7	14.1	31.2

Source: *LearnInd HTS 2006;* ***Base:*** *a: all pupils; b-j: all schools, k-n: schools using computers for educational purposes for pupils (cf. index b);* ***Question:*** *a: Q4, Q6, Q7; b: Q6; c: Q9; d: Q9; e-j: Q12; k-n: Q8. See questionnaire for exact wording.*

Those schools with a broadband connection to the internet are the much more likely to have a more sophisticated ICT infrastructure including a school website, the use of a LAN or the availability of an intranet.

The use of Computers and the Internet in Schools

Computers are used for various purposes and as part of teaching different subjects in schools but also and very widely as a separate subject.

Computer sciences are taught as a separate subject in just 42% of Austrian schools. While this is the case in only 9% of primary schools it reaches figures of 86% in lower secondary, a very high 95% in upper secondary schools and 81% of vocational schools according to the statements made by Austrian head teachers.

ICT are mostly (in 67% of the schools) used as an integral part of the teaching of most subjects, a figure which is still below the EU25 average of 75%. Differences according to school type are not very high.

A very high 88% of Austrian classroom teachers have used computers in class in the 12 months prior to the survey, with little variation across school types and between urban and rural areas, placing Austria at a very good rank 6 in Europe. For most teachers, this includes not only using a computer for presentation purposes but also and predominantly the use computers by pupils in class (85% compared to 66% in the EU25).

A majority (52%) of teachers using computers use them in between 10% and 25% of all lessons. Only 11% state that they use computers in more than half of their lessons. Teachers in vocational schools use computers in class more frequently than their colleagues in general education with almost 43% using computers in more than a quarter of their lessons compared to for instance only 23% of the teachers in primary schools.

Austrian teachers using computers do not restrict themselves to a particular source of information but use a multitude of different material from a variety of sources for teaching purposes, which in most categories are around the European average.

Use of computers in class in Austria 2006

Assessments of the head teacher		Total AT	Total EU25	Educational Level (AT)				Type of locality (AT)			Internet Access (AT)	
				Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated	Narrow-band	Broadband
Computer sciences taught as separate subject	Agree	42.1	54.7	8.8	85.8	95.0	80.9	58.5	40.3	39.5	27.2	48.8
	Disagree	57.4	43.7	90.7	14.2	2.9	17.7	41.5	59.7	59.4	71.9	50.7
	Don't know	0.6	1.6	0.5	0.0	2.1	1.4	0.0	0.0	1.1	0.8	0.5
Computers and the internet are												
integrated into teaching of most subjects	Agree	66.8	75.3	61.7	73.9	61.3	67.8	62.3	70.1	65.5	67.6	66.4
	Disagree	32.8	24.1	37.7	24.8	38.7	32.2	37.7	28.9	34.5	31.2	33.6
	Don't know	0.4	0.6	0.7	1.3	0.0	0.0	0.0	1.0	0.0	1.2	0.0
used for teaching traditional subjects or basic skills	Agree	80.0	75.8	82.0	81.1	64.8	68.1	80.5	80.6	79.5	84.1	78.1
	Disagree	18.1	22.8	16.1	17.7	35.2	27.7	17.7	16.4	19.4	11.7	21.0
	Don't know	1.9	1.4	1.9	1.3	0.0	4.2	1.8	3.1	1.1	4.2	0.8
used for teaching foreign languages	Agree	57.2	56.6	45.6	78.3	69.5	57.6	68.0	57.2	54.8	46.6	62.0
	Disagree	39.5	40.1	51.2	17.9	25.7	37.3	26.8	38.2	43.2	49.8	34.7
	Don't know	3.3	3.3	3.2	3.8	4.8	5.1	5.2	4.6	2.0	3.5	3.3
used for coping with students with special needs/ handicaps	Agree	37.3	71.7	40.1	46.2	14.3	22.1	24.6	42.8	36.3	30.6	40.3
	Disagree	8.3	23.7	7.8	8.0	9.3	9.6	11.6	4.3	10.3	8.7	8.1
	Don't know	54.4	4.6	52.2	45.8	76.5	68.4	63.7	53.0	53.4	60.7	51.6

Source: *LearnInd HTS 2006;* ***Base:*** *All schools using computers for educational purposes for pupils;* ***Question:*** *Q13: "To what extent do you agree or disagree with the following statements regarding the educational use of computers and/or the internet in your school?"*

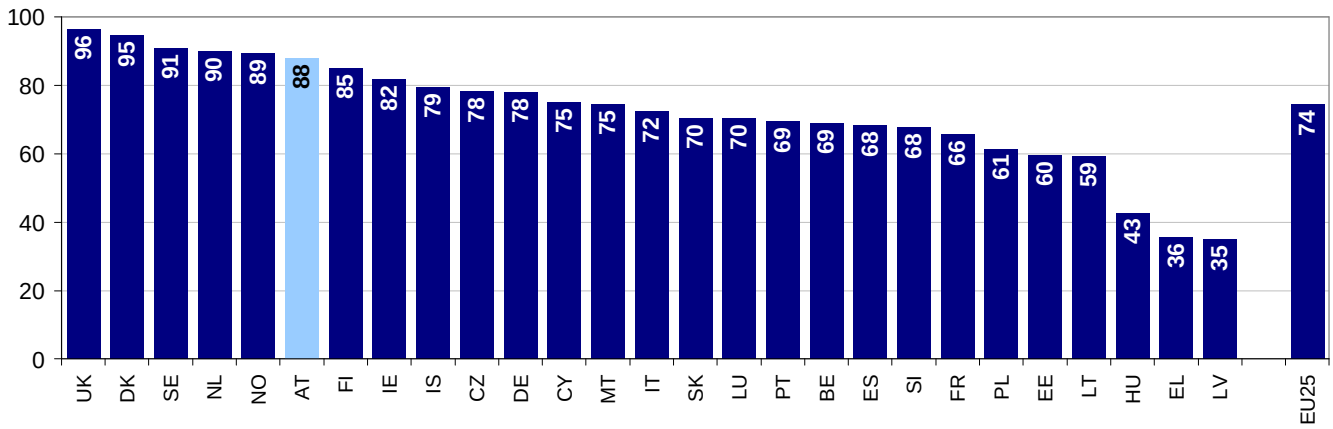
The learning material that is used mostly by Austrian teachers includes offline learning materials such as CD-ROMs. This applies to almost 90% of teachers. Primary school teachers are the most intensive users of CD ROMs with almost 100% making use of this type of offline learning material, while vocational school teachers mostly (90%) search the internet for appropriate learning material.

Very surprisingly, the older the teachers (indicator used here: years of teaching experience), the more they make use of computers and the internet in schools in Austria. While only 14% of the younger teachers with less than 10 years of teaching experience use ICT in class in more than a quarter of their lessons, the corresponding figure reaches 34% among those with more than 20 years of teaching experience. On the contrary, 65% of the young teachers use ICT in only up to 10% of their lessons compared to just 30% of the older teachers.

Only 12% of teachers do not use computers in class in Austria. When asked for the most important barrier, a rather high 55% stated a lack of computers in their schools as an important barrier. However, in total the statement "lack of equipment in school" is expressed by just 7% of all Austrian teachers (12% non-users multiplied with 55% of teachers agreeing to this item).

Only 14% are not convinced of any benefits of using computers in class and a very low 8% express the opinion that teachers lack the necessary skills to utilize computers in their teaching. With these figures, Austria ranks among the best performers on perceived ICT competence in Europe.

Percentage of teachers who have used computers in class in the last 12 months (2006)



Source: *LearnInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *Q7. See questionnaire for exact wording*

Teachers' use of computers in class in Austria 2006

Percentage of teachers who ...	Total AT	Total EU25	Educational Level (AT)				Type of locality (AT)			Years of teaching experience (AT)			
			Primary	Lower secon-dary	Upper secon-dary	Voca-tional	Densely popu-lated	Inter-mediate	Thinly popu-lated	<5 y	5-9 y	10-19 y	20+ y
...have used computers in class[1]	87.9	74.3	87.9	87.5	81.3	86.1	83.2	86.0	91.0	*94.2**	*85.5**	78.0	90.2
...use a computer in class to present or demonstrate	60.3	63.4	51.6	74.0	70.5	67.9	63.7	56.9	60.3	*74.2**	*63.7**	46.1	62.1
...have pupils use a computer in class	84.4	66.3	85.2	85.9	74.0	77.9	78.9	82.4	87.7	*81.9**	*82.8**	72.5	87.7

Source: *LearnInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *Q7 "How have you used computers and/or the internet for work in the last 12 months?"*

Frequency of computers use in class Austria 2006

Percentage of all teachers *using computers in class* who ...	Total AT	Total EU25	Educational Level (AT)				Type of locality (AT)			Years of teaching experience (AT)			
			Primary	Lower secon-dary	Upper secon-dary	Voca-tional	Densely popu-lated	Inter-mediate	Thinly popu-lated	<5 y	5-9 y	10-19 y	20+ y
...use computers in 5% and less of all lessons	18.1	18.5	20.2	17.9	26.0	10.4	22.4	15.7	17.4	*38.6**	*13.7**	22.1	16.2
in 6 to 10% of lessons	25.5	22.5	25.6	28.0	25.6	16.9	15.9	28.7	28.0	*25.6**	*30.6**	28.2	24.2
in 11 to 24% of lessons	25.9	22.2	30.8	19.1	23.2	29.6	27.2	20.9	27.6	*21.6**	*25.4**	26.9	26.1
in 25 to 50% of lessons	20.0	20.2	16.2	23.6	14.0	21.3	22.3	21.8	18.2	*9.7**	*18.6**	12.1	22.6
more than 50% of lessons	10.5	16.5	7.2	11.4	11.3	21.7	12.1	13.0	8.7	*4.4**	*11.7**	10.7	10.8

Source: *LearnInd CTS 2006;* ***Base:*** *Teachers using computers in class, "don't know" answers excluded;* ***Question:*** *Q9 "For what percentage of time have you used computers and/or the internet in class when teaching your main subject(s) in the past 12 months?"*

Source of educational material used in class in Austria 2006

Percentage of all teachers *using computers in class*[2] who ...	**Total DE**	**Total EU25**	**Educational Level**				**Type of locality**		
			Primary	**Lower secondary**	**Upper secondary**	**Vocational**	**Densely populated**	**Inter-mediate**	**Thinly populated**
...use material they have searched the internet for	81.7	82.7	77.9	84.9	84.2	89.6	84.7	86.2	78.4
...use existing online material from established educational sources	72.5	74.2	71.9	75.1	63.4	68.6	75.6	77.7	68.9
...use material that is available on the school's computer network or database	67.5	63.1	64.5	75.2	57.7	67.0	70.4	63.3	68.1
...use electronic offline material (such as CD ROMS)	90.2	83.0	96.6	89.2	74.3	74.3	86.0	85.7	94.0
...use other learning material when using computers in class	21.0	8.8	19.7	17.2	20.0	36.5	27.7	17.6	19.8

Source: *LearnInd CTS 2006;* ***Base:*** *Teachers using computers in class;* ***Question:*** *Q10 "Which of the following types of materials have you used when teaching your main subject(s) with the aid of a computer and/or the internet?"*

Barriers to computer use in class in Austria 2006

Percentage of all teachers ***not*** *using computers in class*	**Total AT**	**Total EU25**	**Educational Level**				**Type of locality**		
			Primary	**Lower secondary**	**Upper secondary**	**Vocational**	**Densely populated**	**Inter-mediate**	**Thinly populated**
Lack of computers	54.7	48.8	*52.8**	*36.0**	*50.4**	*75.8**	*56.6**	*51.5**	*55.5**
Lack of adequate content/material	7.1	20.3	*3.9**	*7.2**	*10.9**	*13.9**	*0.0**	*8.0**	*12.4**
Lack of content in national language	0.0	8.6	*0.0**	*0.0**	*0.0**	*0.0**	*0.0**	*0.0**	*0.0**
Lack of adequate skills of teachers	7.9	22.5	*5.2**	*15.4**	*15.7**	*0.0**	*19.3**	*0.0**	*4.0**
No or unclear benefits	14.4	16.2	*16.0**	*11.7**	*10.9**	*15.6**	*6.2**	*29.3**	*10.3**
Lack of interest of teachers	2.2	8.9	*3.9**	*0.0**	*0.0**	*0.0**	*0.0**	*0.0**	*5.7**
Subject does not lend itself to being taught via computers	25.3	24.4	*23.9**	*38.0**	*48.2**	*25.2**	*36.3**	*30.4**	*12.3**
Other	27.2	21.3	*26.9**	*31.0**	*21.8**	*31.7**	*16.2**	*42.1**	*25.6**

Source: *LearnInd CTS 2006;* ***Base:*** *all teachers not using computers in class;* ***Question:*** *Q12: "Why do you not use computers and/or the internet when teaching in class?"*

Comparison of the situation in 2001 and 2006[3]

In Austria the percentage of schools using computers for educational purposes has risen over the past 5 years from an already high 90% in 2001 to 99% in 2006.

While in 2001 one hundred pupils had to share 11 computers the figure rose to 16 by 2006, a substantial improvement bringing Austria beyond the European average of 12 and placing it at a very good rank 8. Vocational schools in Austria are best equipped with computers, with 100 pupils sharing 24 computers, putting Austria at rank 6 in Europe.

Schools have moved over to broadband. 30% (EU25: 45%) of the schools in Austria are connected to the internet via a DSL connection in 2006. The figure for 2001 was just 7% (EU15: 5%). The figures have increased strongly over the past 5 years especially when bearing in mind that the overall broadband internet access rate at Austrian schools including any means of broadband access has reached 68%.

Schools have also strongly increased the quality of ICT use: while in 2001 43% (EU15: 44%) of the schools in Austria had their own website, this figure is now 64% (EU25: 62%). The use of a LAN – which was used by 45% (EU15: 47%) of the Austrian schools – is also now up to 68% (EU25: 54%).

Attitudes on the Usefulness of ICT use in Teaching

Computers and the internet have arrived in Austrian schools and their use is steadily improving. The share of teachers in Austria – but also in the European Union in general – who believe that computers and the internet should not at all be used in schools is very low: below 1%.

Austrian teachers are positive about the different applications of ICT in teaching and achieve high figures (above the European average) regarding attitudes that ICT should be used for letting pupils do exercises and practise (a very high 94%), letting pupils retrieve information in a self directed manner (86%) and for collaborative and productive work by pupils (73%). There are only small differences across school types.

A majority of Austrian teachers (70%) still believe that teaching about office tools should be an integral part of the teaching process. With this figure, the country ranks above the EU25 average figure. This attitude is most prominent among teachers in vocational schools (92%) and least prominent in primary schools (55%). It is interesting that there is no common pattern across the European countries. In some countries (e.g. the UK, Norway, Iceland, Cyprus but also Spain) teachers in primary schools express this opinion much more strongly and to a larger extent compared to higher-level schools.

Attitudes on the Usefulness of ICT use in Teaching in Austria 2006

Percentage of teachers saying computers/internet should be used for …	Total AT	Total EU25	Educational Level				Type of locality		
			Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated
Letting pupils do exercises and practise	93.8	79.9	93.2	95.2	92.4	93.7	92.7	92.9	94.8
Letting pupils retrieve information in a self-directed manner	85.7	85.0	77.2	95.9	94.9	96.7	95.3	89.7	79.5
Teaching about office tools	70.3	61.3	54.9	88.6	80.9	91.8	83.6	72.9	63.1
Collaborative and productive work by pupils	72.9	80.5	71.9	71.5	72.5	72.8	74.9	70.1	73.4
Computer/internet should not be used for any of these in teaching	1.1	0.6	1.8	1.1	1.1	0.0	1.5	1.9	0.5

Source: *LearnInd CTS 2006;* ***Base:*** *all teachers;* ***Question:*** *Q13: "What do you think for what computers and the internet should be used for in teaching?"*

Access, Competence and Motivation for Using ICT and the Internet in Schools

Access

The majority of Austrian teachers are more or less satisfied with the technical access means at their schools: 75% state that their school is well equipped with computers and 78% express the opinion that their internet connection is fast enough. 53% wish there were better support and maintenance actions taken. In terms of content a minority states problems with respect to finding adequate learning materials (24%) and argue that existing material are of poor quality (26%).

Competence in using ICT

Austrian teachers feel most competent at using e-mail and using a text processor programme but are less confident with downloading and installing software and with using presentation software packages.

Primary and lower school teachers (39%) seem to be only slightly less ICT competent than those in upper secondary (35%) and vocational schools (33%).

Motivation for ICT use in Schools

78% of Austrian teachers see significant learning benefits for pupils using computers in class and say that pupils are more motivated and attentive when computers and the internet are used in class. This figure is highest among primary school teachers (85%) but overall below the European average. However, 28% compared to a EU25 average of 21% believe in significant learning benefits for pupils when using ICT in class.

Teachers' access, competence and motivation for using ICT in class 2006

Percentage of teachers agreeing or strongly agreeing:	Total AT	Total EU25	Educational Level				Subject of teaching					
			Primary	Lower secondary	Upper secondary	Vocational	General primary	Literature and languages	Humanities and social sciences	Science, maths, computer sciences	Physical, artistic, crafts education	Vocational education
Access												
Our school is well equipped with computers [a]	74.5	74.2	68.6	78.6	68.0	84.2	69.6	78.2	68.4	75.0	83.1	*77.9**
The internet connection we have is sufficiently fast [b]	78.1	77.2	70.8	85.9	88.8	87.4	72.3	75.6	85.6	77.0	76.5	*91.1**
Better technical maintenance and support is required in our school [c]	53.3	64.8	62.3	40.3	43.1	46.7	64.5	50.7	45.1	53.7	33.5	*46.0**
Existing teaching materials on the Internet are of poor quality [d]	26.4	29.9	20.1	32.4	41.6	38.0	20.2	30.1	39.6	23.6	24.8	*32.7**
It is hard to find adequate learning materials for teaching [e]	23.6	38.7	19.1	26.1	34.9	34.9	17.0	25.2	35.8	23.7	25.3	*33.8**
Motivation												
Pupils are more motivated and attentive when computers and the internet are used in class [f]	77.7	86.3	83.6	74.8	57.3	67.5	85.3	73.7	76.0	78.8	69.6	*62.1**
Using computers in class does not have significant learning benefits for pupils [g]	28.1	20.7	26.8	26.6	39.8	29.6	23.8	28.8	23.0	32.4	28.8	*20.9**
Competence												
Teachers in our school do not have sufficient computer skills [h]	38.6	42.0	39.7	39.3	35.4	33.4	40.5	35.9	31.3	41.0	31.0	*36.9**
Competence / computer skills (Percentage of teachers who feel very confident at…)												
Using text processors [i]	83.8	65.0	80.7	87.8	83.9	86.8	79.2	85.1	85.3	84.2	*86.1**	*80.8**
Creating electronic presentations [j]	36.7	34.0	23.2	50.4	54.6	60.0	23.6	37.8	45.3	34.3	*32.9**	*63.7**
Using e-mail [k]	76.9	65.9	72.4	83.3	87.4	82.2	70.2	79.4	84.7	76.6	*82.3**	*72.2**
Downloading and installing software [l]	37.0	35.8	33.0	44.5	40.4	38.5	30.7	37.1	39.1	40.8	*29.7**	*29.5**

Source: *LearnInd CTS 2006;* ***Base:*** *a-h All teachers; i -l Teachers using computers in class* ***Question:*** *a-h Q14, i-l Q11*

ICT Readiness of Teachers – the ACM Model

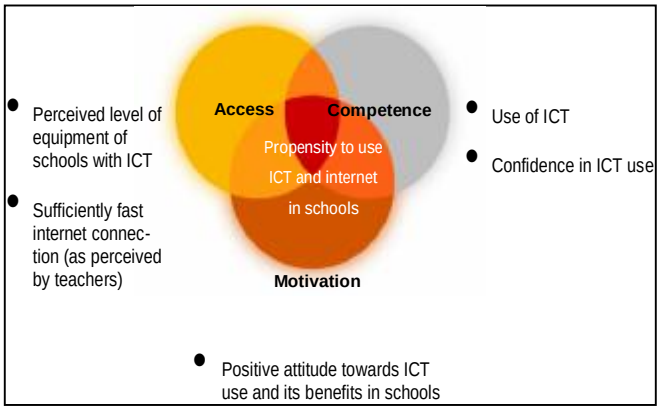
The ACM model as developed by Viherä and Nurmela (2001)[4] was applied in LearnInd to generate a typology according to the "propensity to the use of computers and internet by teachers in classroom situations at schools".

The typology in the figure below takes account of the three main categories of preconditions which need to be given for a school to make use of computers and the internet in the teaching process in classrooms, computer labs etc.

These are: access (to computers and the internet at school); competence (in using the computer software and the internet, and applying it for teaching purposes); and motivation (gauged through the attitude that using computers in classrooms results in significant learning benefits).

Any attempt to group the classroom teachers according to their propensity to becoming users of computers and the internet in their teaching processes needs to take account of these three dimensions. In the present application of the ACM model data from the Classroom Teacher Survey (CTS) was used. Therefore "access" for instance is to be understood as a perceived level of computer equipment at schools and teachers' satisfaction therewith rather than an objective measure of equipment status.

The Access-Competence-Motivation Model



38% of European teachers dispose of sufficient access to the internet at school, the necessary competence in using ICT in class and are motivated to its use. With 34% of the teachers belonging to this group, Austria ranks at 16th which places the country in the middle of European countries. Overall the UK with 60% ranks top and Latvia with 15% finds itself at the very end.

The as yet insufficient internet connection in many schools and a lack of motivation of teachers for using ICT are the most critical issues for a wider uptake of computers and the internet in schools in Europe. 20% of European teachers indicate insufficient computer equipment and the low speed of internet connection at their school as key barriers. 14% show a lack of motivation, i.e., they are of the opinion that using computers in class does not result in significant learning benefits.

The situation in Austria is very similar to the overall situation in the EU25 with respect to the results on insufficient ICT equipment in schools with figures very close to

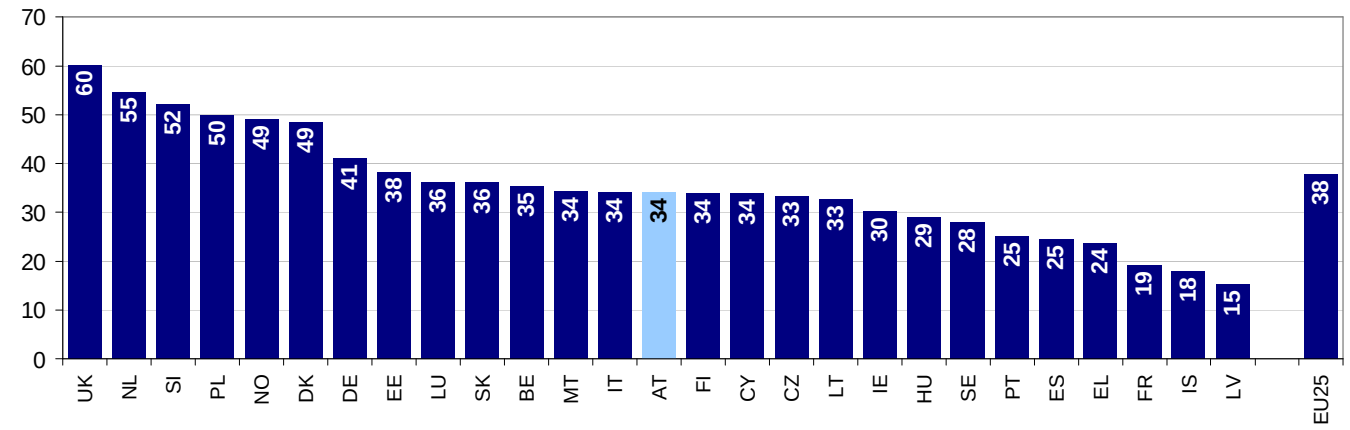
the European ones. However, the problem in Austria seems to be the lower levels of motivation for ICT use in class by teachers since a high 21% (compared to an EU25 average of 14%) of teachers with the necessary access and competence are not motivated. Another 15% (compared to 10% at EU25 level) with the necessary ICT skills lack motivation and access to ICT.

Access, Motivation and Competence of Teachers for Using ICT in Schools in Austria 2006

AT	EU25	Access	Competence	Motivation
2.7	4.3	~~Access~~	~~Competence~~	~~Motivation~~
3.6	3.9	**Access**	~~Competence~~	~~Motivation~~
15.2	9.7	~~Access~~	**Competence**	~~Motivation~~
2.3	5.0	~~Access~~	~~Competence~~	**Motivation**
20.7	13.7	**Access**	**Competence**	~~Motivation~~
2.5	4.8	**Access**	~~Competence~~	**Motivation**
19.0	20.7	~~Access~~	**Competence**	**Motivation**
34.1	37.9	**Access**	**Competence**	**Motivation**
100	100			

Percentage of teachers. ***Source:*** *LeanInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *See endnote* [5]

ICT Readiness of Teachers in Austria: Percentage of Teachers Fully Ready to use Computers in Class (ACM Indicator) 2006



Source: *LeanInd CTS 2006;* ***Base:*** *All teachers.* ***Question:*** *See endnote 5*

ANNEXES

Methodology Report

Universe / Sample population

In order to assure the comparability of school levels in all countries UIS-OECD-EUROSTAT "Mapping of national education programmes to ISCED 97 for school academic/year 2002/2003" [6] was used for composing the sample frame. Based on this, each country divided its school system into ICSED codes and made different combinations that existed in its country.

Sampling frame and method

The sample was composed using official databases, which contained contact data of schools. In the majority of countries the sample was drawn from a database received from the Ministry of Education.

For each country a separate template of sample frames was composed by TNS Emor. These templates contained data about school types across regions as well as location type. School types were defined based on the ISCED codes provided in UIS-OECD-EUROSTAT. Location type distribution was made according to the Eurostat type of locality classification which differentiates densely populated, intermediate and thinly populated municipalities[7]. Apart from that, each country was divided into 3-7 regions depending on the size of a country.

Based on the data provided by countries, TNS Emor composed quotas for each country. Two level stratification was used – quotas for first stage, random sample for second. The quotation for region by school type and location type was endorsed. Simple random selection was conducted by the local agency or the local source of the contact base. Both private and public schools were included in the sample. It was also obligatory to include schools of other teaching languages than the official language of a country in the sample.

Simple random sampling was used inside a quota cell. This means that if the quota for primary schools in region1 was 100 and the total number of primary school in this region was 800, then a random sample selection was be made among those 800 schools. This covered also both private and public schools and schools of other teaching languages than the official language of a country.

No more than 50% of interviews could be made in one school level. At least 10% of respondents had to be from schools, which provided professional/vocational or combined programme of vocational and upper secondary level education (in case a country did not have special quota for those schools). It did not matter whether vocational education level was coded as ISCED 3 or ISCED 4.

There were no duplications in samples of head teacher and classroom teacher surveys. This was only allowed in countries with small universe sizes (e.g. Malta, Cyprus, Iceland, Estonia, Latvia etc) and in cases where the last quota cells were very difficult to achieve or there were not enough schools of a certain type. The priority was to include as many different schools as possible. In both surveys, 5 attempts were made before giving up and only if the respondent refused was this person not contacted again.

The CATI programme generated a randomly chosen letter. The interviewer asked for the person with a surname that started on the generated letter. If there was more than one teacher whose surname started with the selected letter, the person that was first alphabetically was chosen. If the correct person was not available, an appointment was made. At least 5 attempts were made before taking another teacher.

Only in Malta, due to instructions dictated by the Education Department, would the Head Teacher randomly select a teacher who would be available for an appointment, during which they would be interviewed.

Number of interviews conducted (HTS / CTS)

Country		Head Teachers	Classroom teachers
BE	Belgium	450	807
CZ	Czech Republic	500	1000
DK	Denmark	315	848
DE	Germany	450	901
EE	Estonia	400	851
EL	Greece	500	1000
ES	Spain	518	1022
FR	France	501	869
IE	Ireland	403	626
IT	Italy	500	900
CY	Cyprus	150	600
LV	Latvia	451	902
LT	Lithuania	457	908
LU	Luxemburg	82	277
HU	Hungary	500	1000
MT	Malta	100	200
NL	Netherlands	515	890
AT	Austria	320	450
PL	Poland	500	1000
PT	Portugal	450	900
SI	Slovenia	253	460
SK	Slovakia	502	1000
FI	Finland	318	601
SE	Sweden	200	450
UK	United Kingdom	450	905
IS	Iceland	177	424
NO	Norway	494	708
TOTAL		**10456**	**20499**

Fieldwork

Fieldwork was coordinated by the TNS Emor and conducted in cooperation with its local TNS offices excluding Iceland, Cyprus, Austria, Slovenia and Malta where TNS does not have offices. In these countries partners with whom TNS had previous experience were used.

Pilot interviews prior to the regular fieldwork were conducted with 20 schools in both target groups in Estonia and Greece in February 2006, in order to test the questionnaire (structure, comprehensibility of questions).

Between March and April 2006, surveys among head teachers (head teacher survey - HTS) and classroom teachers (CTS) were carried out in 27 European countries. TNS Emor was responsible for the fieldwork.

Weighting schemes

After the fieldwork, weighting coefficients were computed using region, location type and school type.

Statistical accuracy of the survey: confidence intervals

Statistics vary in their accuracy, depending on the kind of data and sources. A "confidence interval" is a measure that helps to assess the accuracy that can be expected from data. The confidence interval is the estimated range of values on a certain level of probability of error. Confidence intervals for estimates of a population fraction (percentages) depend on the sample size, the probability of error, and the survey result (value of the percentage) itself. Further to this, variance of the weighting factors has negative effects on confidence intervals.

The calculation of confidence intervals is based on the assumption of (quasi-) infinite population universes. In practice, however, in some countries and for some school levels the complete population of schools consists of only several hundred or even a few dozen of schools. In some cases, literally each and every school within a country-school type cell was contacted and asked to participate in the survey. This means that it is practically impossible to achieve a higher confidence interval through representative school surveys in which participation is not obligatory.

Country Background Data

Overall Austria has one of the lowest fertility rates in Europe. The population aged 0 – 14 reaches just 16% which results in Austria staying around the European average. The sector of secondary education is publicly well funded, and the pupil/teacher ratio in primary schools is among the best in Europe. Compared to other Western European countries, a high number of Austria's population lives in rural areas

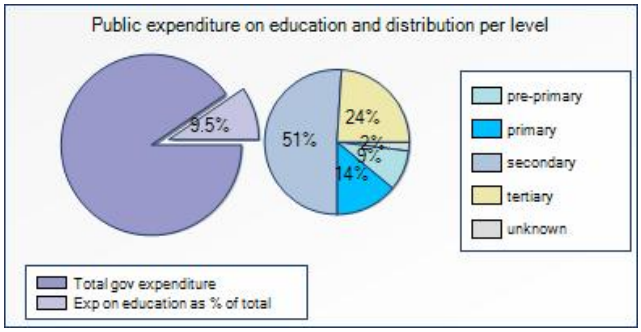
General Population Data for Austria 2002/03[8]

Total population (000)	8,111
Annual population growth rate (%)*	0.4
Population 0-14 years (%)	16
Rural population (%)*	32
Total fertility rate (births per woman) *	1.4
Infant mortality rate (0/00) *	4
Life expectancy at birth (years) *	79
GDP per capita (PPP) US$ *	29,339
GDP growth rate (%)*	1.4
* World Bank World Development Indicators	

Resources for Education in Austria 2002/03

Pupil / teacher ratio (primary)	13
Public expenditure on education :	
as % of GDP	5.7
as % of total government expenditure	11.1
Distribution of public expenditure per level (%) :	
pre-primary	8
Primary	20
Secondary	47
Tertiary	22
Unknown	3

Resources for Education in Austria 2002/03



The Educational System in Austria[9]

At the beginning of 2003, approximately 56% of the population aged 29 or under were in education, and there were 838,000 young people of compulsory education age. The language of instruction is predominantly German but, in regions with a linguistic minority, instruction at primary schools is divided between German and Slovenian, Hungarian or Croatian in bilingual institutions.

In the academic year 2002/2003, about 89% of students attended state-funded education establishments.

Private institutions accounted for the remaining 11%. Responsibilities for legislation and its implementation are divided between the Federation (Bund) and the *Länder* (where it is executed by the parliaments of the *Länder* and the *Ämter der Landesregierungen*). In specific matters enumerated in the Constitution, the Federation sets the framework, while detailed legislation is implemented by the parliaments of the *Länder* (*Landtage*). The Federation has the overall responsibility for the education system, including virtually all areas of school organisation, the organisation of school instruction, private schools as well as the remuneration and retirement law governing education staff. As regards administration, the Ministry of Education, Science and Culture is responsible for primary, secondary and non-university tertiary education as well as for *Fachhochschulen* and universities. The Ministry of Economic Affairs and Labour is responsible for in-company apprenticeship training. The *Länder* (federal states) are mainly responsible for the provision of public-sector compulsory education. They support the local communities in establishing and maintaining these schools via school construction funds that are administered by the *Länder*. The *Länder* have sole responsibility for crèches and kindergartens. Schools enjoy some autonomy in budgetary management and, up to a point, are free to adapt the curriculum to local needs. Provincial school inspectors in each of the nine Austrian *Länder* (assisted by district school inspectors for

compulsory schools, and subject inspectors for the intermediate and upper secondary levels) are responsible for inspections.

The 2002 University Act transformed universities from federal institutions to public law entities which are no longer under federal administration. Federal funding consists of 3-year global budgets based on public-service agreements; universities are free to tap other sources of funding by virtue of their full legal capacity. Territorial entities and private legal entities may operate *Fachhochschulen*. At present, *Fachhochschule* study programmes are mainly funded by the federal government in line with authorised study places.

The use of ICT in Education[10]

Launched by the Federal Ministry for Education, Science and Culture (BMBWK), the IT initiative "eFit-Austria" aims to contribute to improved quality of the education system. At the centre of the initiative brought into life in 2000, the sustainable use of modern information and communication technologies is regarded to be a key tool for increasing access to education and improving quality of education for the individual. As part of eFit-Austria, in the field of "eEducation", special skills training programmes are being implemented for pupils. In the area of "eTraining" CVET programmes, ICT skills are particularly taught to better qualify unemployed people for the labour market.

The integration of ICT in education and training has been a priority of curriculum development since the mid-1990s. In the following years, ICT has been integrated in VET schools and colleges through new special training focuses within existing subjects. In all disciplines, the curriculum has been changed and adapted to the need of integrating new ICT tools throughout the whole area of education.

The adjustment of curricula, learning tools and methods in schools and learning institutes is a continuous challenge. Thus, since the mid-1990s, more than 150 apprenticeships have either been modernised or completely recreated. In VET schools and colleges (BMHS), via internal differentiation based on special focuses, not only the diversity of the offer was increased, but also and rather considerably the percentage of teaching of information and communication technologies and other basic qualifications. In general education, the entire curricula of lower secondary level and upper secondary level have been updated continuously since 2000.

Since 2003, 13 further training programmes with ICT use have been developed and implemented, particularly with a focus on unemployed people and university further training, e.g. development of new professional fields (knowledge experts) and training of teachers.

The Study

There is a lack of information on the actual use of ICT for learning in schools and for supporting political action in potential future programmes. It is necessary to clarify matters such as the educational vision of heads of schools, the current impact of ICTs on teachers' practice, support and training and on other factors for success in e-learning.

The objective of the study is to obtain estimates for the eEurope 2005 indicator on e-learning "number of pupils per computer with Internet connection (broadband/non-broadband)" and relate it to other possible indicators of educational use of ICT in compulsory education (e-learning in schools). The study looks at how Information and Communication Technologies (ICT) are used in schools.

The study is a continuation of the earlier benchmarking exercise for eEurope 2002.

It involved two surveys. Firstly of head teachers to obtain information on the schools and then of teachers to focus on their use of ICTs in the teaching process

This exercise is part of the Information Society monitoring and benchmarking process for which the Commission in cooperation with the Council defined benchmarking indicators.

Country Briefs

This document has been prepared by **empirica** based on own desk research and the above-mentioned primary data sources: Head Teacher Survey (HTS) 2006 and Classroom Teacher Survey (CTS) 2006 in the EU25 member states, Iceland and Norway. .

Altogether 27 LearnInd Country Briefs are available in a common format, one for each member of the enlarged European Union, Norway and Iceland.

A final report has also been developed. It includes approximately 100 exhibits, more than 250 data tables and a report about the key results.

You can access and download these documents in PDF format (for free) from http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm .

More information

Check our results and achievements on: http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm. If you wish to be provided with more details, or to receive news and updates, please contact us at: **learnind@empirica.com** or get in touch with us.

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1 Note that "in class" means during lessons while teaching and does not denote a particular location such as a classroom.

2 Base (100%) = all teachers who have used a computer in class in the last 12 months.

3 This section includes some comparisons of the Eurobarometer Flash 94/1001 and 95/102 results from 2001 with those from the LearnInd surveys from 2006. Please bear in mind that the figures are not directly comparable due to the use of slightly different approaches and methodologies.

4 Viherä, M-L, Nurmela, J (2001) "Communication Capability Is an Intrinsic Determinant for Information Age", in Futures, Volume 33, Issue 3-4:245-265.

5 Synthetic indicators: Access: Q14 (2) "Our school is well equipped with computers" and Q14 (3) "The internet connection we have is sufficiently fast ".

Competence: Q11 "How confident do you feel... a) using a text processor, b) creating a presentation c) using e-mail, d) downloading and installing software". Threshold: Average of 2.5 or more on a 1-4 confidence scale

Motivation: Q14 (8); disagree to "Using computers in class does not result in significant learning benefits".

For full question wordings refer to questionnaire.

[6] http://forum.europa.eu.int/Public/irc/dsis/edtcs/library?l=/public/unesco_collection/programmes_isced97&vm=detailed&sb=Title

[7] Densely populated area refers to a set of closely related local units, each one of which having a density greater than 500 inhabitants per km2, and the total population of which being of at least 50 000 inhabitants; Intermediate area refers to a set of closely related local units that do not pertain to a densely populated area, each one of which having density greater than 100 inhabitants per km2, and where the total population is at least of 50 000 inhabitants or it refers to a set that is adjacent to a highly populated area. Thinly populated area (rural): refers to a set of closely related local units that are not part of a densely populated area, or of an intermediate area. (A set of local areas totalling less than 100 km², not reaching the required density, but entirely enclosed within a densely-populated or intermediate area, is to be considered to form part of that area. If it is enclosed within a densely-populated area and an intermediate area it is considered to form part of the intermediate area).

[8] Source: http://www.uis.unesco.org/profiles/selectCountry_en.aspx (visited 28 March 2006)

[9] Source: http://www.eurydice.org/Documents/struct2/frameset_EN.html (visited: 28 March 2006)

[10] Source: http://europa.eu.int/comm/education/policies/2010/nationalreport_en.html (visited: 9 May 2006)